Types 912H, 912N, Y200H, Y200N, and R922N LP-Gas Regulators

WARNING

Fisher® equipment must be installed, operated, and maintained in accordance with, federal, state, and local codes and Emerson Process Management Regulator Technologies, Inc. instructions. The installation in most states must also comply with NFPA No. 54 and 58 standards.

Only personnel trained in the proper procedures, codes, standards, and regulations of the LP-Gas industry should install and service this equipment. Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Things to Tell the Gas Customer:

1. Point out the regulator's vent to the customer (or vent assembly or vent tube), and **stress that this opening must remain unobstructed at all times.** Tell the customer to be sure to check the vent opening after a freezing rain, sleet storm, or snow to make sure ice has not formed in the vent.
2. Show the customer the shutoff valve on the container. The customer should close this valve immediately if gas can be smelled, appliance pilot lights fail to stay on or appear higher than usual, or any other abnormal situation occurs.
3. Tell the customer to call your company to service the regulator. If the regulator vents gas or a leak develops in the system, only a qualified gas serviceman should install or service the regulator.

Introduction

Scope of the Manual

This instruction manual covers installation and maintenance for the following high or low-pressure regulators: Types 912N, 912H, Y200N, Y200H, and R922N.

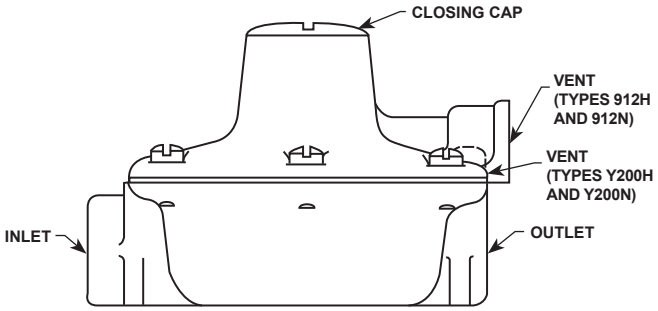

Figure 1. *Typical Regulator Configurations*

Description

The Types 912H and Y200H regulators are designed for high-pressure (pounds per square inch) vapor service and are not to be used for liquid service. Both are U.L. listed, and they are normally painted red.

Types 912N, Y200N, and R922N can be used for either high-pressure or low-pressure (inches of water column) service. They are not to be used for liquid service. "N" suffix regulators are not U.L. listed and are normally painted gray (low-pressure) or red (high-pressure).

Specifications

The Specifications table lists the specifications for the regulators. Contact the factory if the regulators are to be used on any service other than LP-Gas, Natural Gas, or Air. Temperature limits are -20° to 160°F (-29° to 71°C). Maximum inlet pressure is 250 psig (17,2 bar).

Installation

WARNING

All vents must be kept open to permit free flow of air into and out of the regulator. Protect openings against the

Specifications

TYPE	SIZE, INCH FNPT		SERVICE	VENT STYLE	VAPOR CAPACITY, BTU/HR. PROPANE
	Inlet Connection	Outlet Connection			
912H	1/4	1/4 or 3/8	High Pressure	Drilled and Screened	350 000
Y200H	1/4	3/8	High Pressure	Slot	350 000
912N	1/4	1/4 or 3/8	High or Low Pressure	Drilled and Screened	350 000
Y200N	1/4	3/8	High or Low Pressure	Slot	350 000
R922N	1/4. 1/2, or FEMALE POL	1/2	High or Low Pressure	3/4-inch FNPT and Screened	725 000

entrance of rain, snow, ice formation, paint, mud, insects, or any other foreign material that could plug the vent.

LP-Gas may discharge to the atmosphere through the vent. An obstructed vent which limits air or gas flow can cause abnormally high pressure that could result in personal injury or property damage.

Never use a first-stage (pounds to pounds) regulator on low pressure (inches of water column) service because personal injury or property damage could occur.

Make sure gas flow through the regulator is in the same direction as the arrow on the body— ”Inlet” and “Outlet” connections are clearly marked. The installation should be adequately protected from vehicular traffic and damage from other external sources. Install the regulator so that any gas discharge through the vent or vent assembly is over 3-feet (0,91 m) horizontally from any building opening below the level of the discharge.

Install the regulator high enough above ground level—at least 18-inches (457 mm) so that rain splatter cannot freeze in the vent. Whether a protective hood is used or not, do not install the regulator in a location where there can be excessive water accumulation or ice formation, such as directly beneath a downspout, gutter, or roof line of a building.

Before installing the regulator, check for damage which might have occurred in shipment. Also check for and remove any dirt or foreign matter which may have accumulated in the regulator body or pipeline. Apply pipe compound to the male threads of the pipe.

A hood or encasement should be used to protect the Type Y200H or Y200N vent opening from the elements. The regulator vent opening should slope down sufficiently to allow any condensate to drain that may have collected in the spring case. Be careful that the slot in the hood for the regulator outlet piping does not extend too far and expose the vent to the elements.

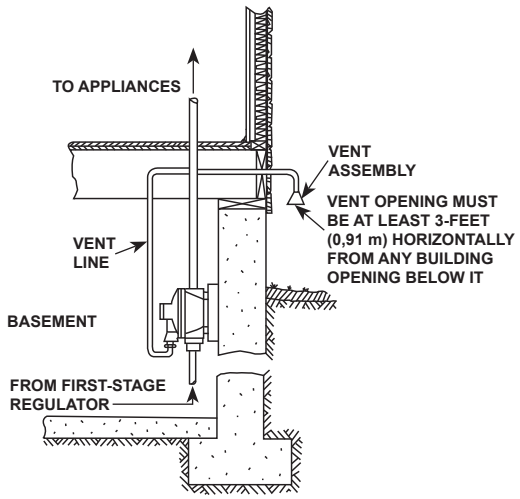

Figure 2. *Typical Indoor Installation with Vent Line and Vent Assembly*

The Types 912H, 912N, and R922N can be installed outdoors without a protective hood if their vent is pointed vertically down.

Horizontally mounted regulators, such as found on single cylinder or tank installations, must be installed beneath a protective cover. If possible, slope or turn the vent down sufficiently to allow any condensation to drain out of the spring case. Be careful that the slot in the hood or cover for the regulator’s outlet piping does not extend too far and expose the vent to the elements.

Regulators installed indoors are limited to 20 psig (1,4 bar) maximum inlet pressure. Types Y200H, Y200N, and most 912s must not be used on indoor installations because a vent line to the outside of the building cannot be installed. On regulators that have a tapped vent (Type R922N and some 912s), use pipe or tubing equal in size to the regulator’s vent for the vent line.

To install the vent line, remove the vent screen and apply a good grade of pipe dope to the male threads of the line, see Figure 2. Vent piping or tubing must not restrict the flow passage of the regulator’s internal relief valve. A vent assembly, such as Fisher® Type Y602, should be used on the end of the vent line. The same

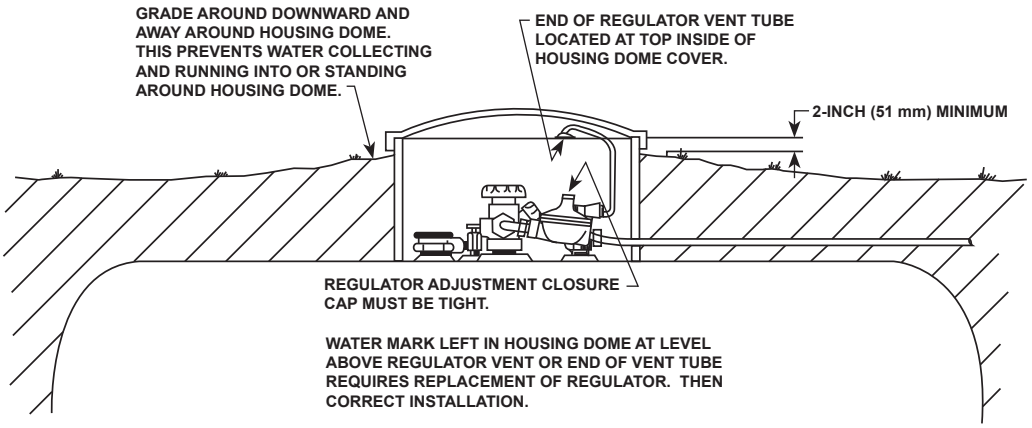

Figure 3. *Regulators Installed on Underground Installations Require a Vent Tube*

installation precautions apply to vent assemblies as the integral regulator vents covered previously.

Underground container systems require a vent tube to prevent water from entering the regulator spring case, see Figure 3. Only the Types R922N and some 912s can be used on underground installations because of the need to use a vent tube. Remove the vent screen and install the vent tube, such as a Fisher® Type P203. The vent tube must be run from the regulator vent to above the maximum water tube. The vent tube opening must terminate at the extreme top inside of the dome cover.

Make sure the regulator's closing cap is on tightly, and maintain drainage away from the dome at all times. For further information on underground installations, write for a copy of "Underground LP-Gas Systems: Suggested Installation, Inspection," available from the National LP-Gas Association, 1301 W. 22nd St., Oak Brook, IL 60521.

Adjustment

Each regulator's outlet pressure is factory-set. If it becomes necessary to increase outlet pressure, remove the closing cap, Figure 1, and turn the adjusting screw clockwise. Turn the adjusting screw counterclockwise to decrease the outlet pressure. A pressure gauge is needed to determine the regulator's outlet setting after adjustment. Always replace the closing cap after adjustment.

Overpressure Protection

WARNING

Personal injury or system damage may result if these regulators are installed without appropriate overpressure protection on final-stage service. Outlet pressures greater than 5 psig (0,35 bar) above the setpoint may cause damage to regulator parts, leaks in the regulator, or personal injury due to bursting of pressure-containing parts or explosion of accumulated gas.

If the regulator is exposed to an overpressure condition, it must be inspected for any damage that may have occurred.

Large volumes of gas may discharge through the regulator vent during internal relief valve operation which can result in fire or explosion from accumulated gas.

All the regulators have an internal relief valve that opens when downstream pressure reaches approximately 13 psig (0,90 bar) on regulators set at 10 psig (0,70 bar) or approximately 1 psig (0,07 bar) on regulators set at 11-inches w.c. (0,03 mbar). When the internal relief valve opens, gas escapes to the atmosphere through the regulator's vent. The internal relief valve gives overpressure protection against excessive build-up resulting from seat leakage due to worn parts or chips of foreign material on the orifice.

Some type of external overpressure protection must be provided if inlet pressure will be high enough to damage downstream equipment on final-state service. Common methods of external overpressure protection include relief valves and series regulation.

Maintenance

WARNING

To avoid personal injury or equipment damage, do not attempt any maintanance or disassembly without first isolating the regulator from system pressure and relieving all internal pressure.

Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Only parts manufactured by Fisher® should be used for repairing Fisher regulators. Relight pilot lights according to normal startup procedures.

Due to normal wear or damage that may occur from external sources, these regulators must be inspected and maintained periodically. The frequency of inspection and replacement of the regulators depends upon the severity of service conditions or the requirements of local, state, and federal regulations. Even under ideal conditions, these regulators should be replaced after 15 years from the date of manufacture or sooner should inspection reveal the need.

Visually inspect the regulator each time a gas delivery is made for:

1. Improper installation.
2. Plugged or frozen vent.
3. Wrong regulator or no regulator in the system.
4. Internal or external corrosion.
5. Age of the regulator.
6. Any other condition that could cause the uncontrolled escape of gas.

Failure to do the above could result in personal injury or property damage.

Make sure the regulator vent, vent assembly, or vent tube does not become plugged by mud, insects, ice, snow, paint, etc. The vent screen aids in keeping the vent from becoming plugged, and the screen should be clean and properly installed.

Replace any regulators that have had water in their spring case or show evidence of external or internal corrosion. Checking for internal corrosion may require complete removal of the adjusting screw and shutdown of the gas system. Closely examine regulators directly connected to the container valve by means of a solid POL adapter (horizontal mounting) for signs of corrosion. Correct any improper installations.

Older regulators are more likely to catastrophically fail because of worn or corroded parts. Replace regulators over 15 years of age; other service or environmental conditions may dictate replacement of the regulator before it becomes 15 years old, refer to Fisher Bulletin LP-32.

Regulator Repair

Regulators that have been disassembled for repair must be tested for proper operation before being returned to service. Fisher Type Y499-2 test rack can be furnished for this purpose. Only parts manufactured by Fisher should be used for the repair of Fisher regulators. Be sure to give the complete type number of the regulator when corresponding with the factory.

LP-Gas Equipment

Emerson Process Management
Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75069-1872 USA
Telephone: 1 (800) 558-5853
Telephone: 1 (972) 548-3574

For further information visit www.fisherregulators.com/lp

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